

# **CONTRACT PLANS STANDARD RETAINING WALL DRAWINGS (WD-01 TO WD-09)**

I-405 MP 0.00 TO MP 14.60

**I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT**

**VOLUME 8  
WSDOT FINAL DESIGN SUBMITTAL**

**KING COUNTY**

**VOLUME 8**

REV. NO.	INCLUDED	REV. DATE	SUB. NO.	PLAN REF NO.		SHEET TITLE	SHEET DESCRIPTION
B				W109	2	RETIANING WALL DETAIL	WALL 13.25L (2 OF 2)
B				W110	1	RETAINING WALL PLAN AND PROFILE	WALL 13.26L (1 OF 2)
B				W110	2	RETIANING WALL DETAIL	WALL 13.26L (2 OF 2)
B				W111	1	RETAINING WALL PLAN AND PROFILE	12.35L (1 OF 3)
B				W111	2	RETAINING WALL PLAN AND PROFILE	12.35L (2 OF 3)
B				W111	3	RETIANING WALL DETAIL	12.35L (3 OF 3)
B				W112	1	RETAINING WALL PLAN AND PROFILE	12.35R (1 OF 3)
B				W112	2	RETAINING WALL PLAN AND PROFILE	12.35R (2 OF 3)
B				W112	3	RETIANING WALL DETAIL	12.35R (3 OF 3)
B				W113	1	RETAINING WALL PLAN AND PROFILE	13.00R (1 OF 2)
B				W113	2	RETIANING WALL DETAIL	13.00R (1 OF 2)
B				W114	1	RETAINING WALL PLAN AND PROFILE	12.40ABUT (1 OF 2)
B				W114	2	RETIANING WALL DETAIL	12.40ABUT (2 OF 2)
B	X			WD	1	RETAINING WALL TYPICAL DETAILS	PEDESTRIAN FENCE DETAILS
B	X			WD	2	RETAINING WALL TYPICAL DETAILS	FALL PROTECTION FENCE DETAILS
B	X			WD	3	RETAINING WALL TYPICAL DETAILS	FENCE BASE AND CONNECTIONS
B	X			WD	4	RETAINING WALL TYPICAL DETAILS	PRECAST/CIP CONCRETE
B	X			WD	5	RETAINING WALL TYPICAL DETAILS	WALL FOOTING AND JOINT DETAILS
B	X			WD	6	RETAINING WALL TYPICAL DETAILS	WALL DRAINS
B	X			WD	7	RETAINING WALL TYPICAL DETAILS	WALL DRAIN AND WEEP HOLE DETAILS
B	X			WD	8	RETAINING WALL TYPICAL DETAILS	FALL PROTECTION CABLE FENCE ALT.
B	X			WD	9	RETAINING WALL TYPICAL DETAILS	WALL CAP CONNECTION DETAILS
B				WD		RETAINING WALL TYPICAL DETAILS	
B				NWD	1	NOISE WALL	SECTIONS AND DETAILS
B				NWD	2	NOISE WALL	SECTIONS AND DETAILS
A				NWD	3		
A				NWD	1-1	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-2	NOISE WALL EAST 10(1) AND 10(2)	PRECAST CAP DETAILS
A				NWD	1-3	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-4	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-5	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-6	NOISE WALL EAST 10(1) AND 10(2)	DRILLED SHAFT SCHEDULE
A				NWD	1-7	NOISE WALL EAST 10 - CPF	NOISE WALL DETAILS
A				NWD	4-1	NOISE WALL DETAILS-23'-0" MAX. EXP. WALL	NOISE WALL EAST 11
A				NWD	4-2	NOISE WALL DETAILS-19'-6" MAX. EXP. WALL	NOISE WALL EAST 11
A				NWD	4-3	NOISE WALL DETAILS-12'-0" MAX. EXP. WALL	NOISE WALL EAST 11
A				NWD	4-4	NOISE WALL DETAILS MAX HEIGHT 22'-0"	NOISE WALL EAST 11
A				NWD	4-5	NOISE WALL DETAILS MAX HEIGHT 22'-0"	NOISE WALL EAST 11
A				NWD	4-6	NOISE WALL DETAILS MAX HEIGHT 32'-4"	NOISE WALL EAST 11
A				NWD	4-7	NOISE WALL DETAILS MAX HEIGHT 32'-4"	NOISE WALL EAST 11
A				NWD	4-8	NOISE WALL DETAILS	NOISE WALL EAST 11
A				NWD	4-9	NOISE WALL DETAILS	NOISE WALL EAST 11
A				NWD	4-10	NOISE WALL DETAILS	NOISE WALL EAST 11
A				NWD	4-11	NOISE WALL SHAFT SCHEDULE	NOISE WALL EAST 11
A				NWD	5		
A				NWD	6		
B				NWD	7-1	NOISE WALL DETAILS	NOISE WALL WEST 5(1)
B				NWD	7-2	NOISE WALL DETAILS	NOISE WALL WEST 5(1)
B				NWD	7-3	NOISE WALL DETAILS	NOISE WALL WEST 5(1)
B				NW1	1	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (1) ( 1 OF 2)
B				NW1	2	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (1) ( 2 OF 2)
B				NW2	1	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (2) ( 1 OF 2)
B				NW2	2	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (2) ( 1 OF 2)
B				NW3	1	NOISE WALL PLAN AND PROFILE	CONCRETE PROTECTIVE FENCE ( 1 OF 2)
B				NW3	2	NOISE WALL PLAN AND PROFILE	CONCRETE PROTECTIVE FENCE (2 OF 2)
B				NW4	1	NOISE WALL PLAN AND PROFILE	NOISE WALL EAST 11 (1 OF 7)
B				NW4	2	NOISE WALL PLAN AND PROFILE	NOISE WALL EAST 11 (2OF 7)

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NO.	ISSUE DATE	ISSUE RECORD - DESCRIPTION	DESIGNED BY	ENTERED BY	CHECKED BY	DESIGN MANAGER:	REGION NO. NO.	STATE
							10	WASH
							CONTRACT NO.	

P.E. STAMP BOX

DATE

P.E. STAMP BOX

DATE

**Washington State  
Department of Transportation**

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## I-405

# RENTON TO BELLEVUE

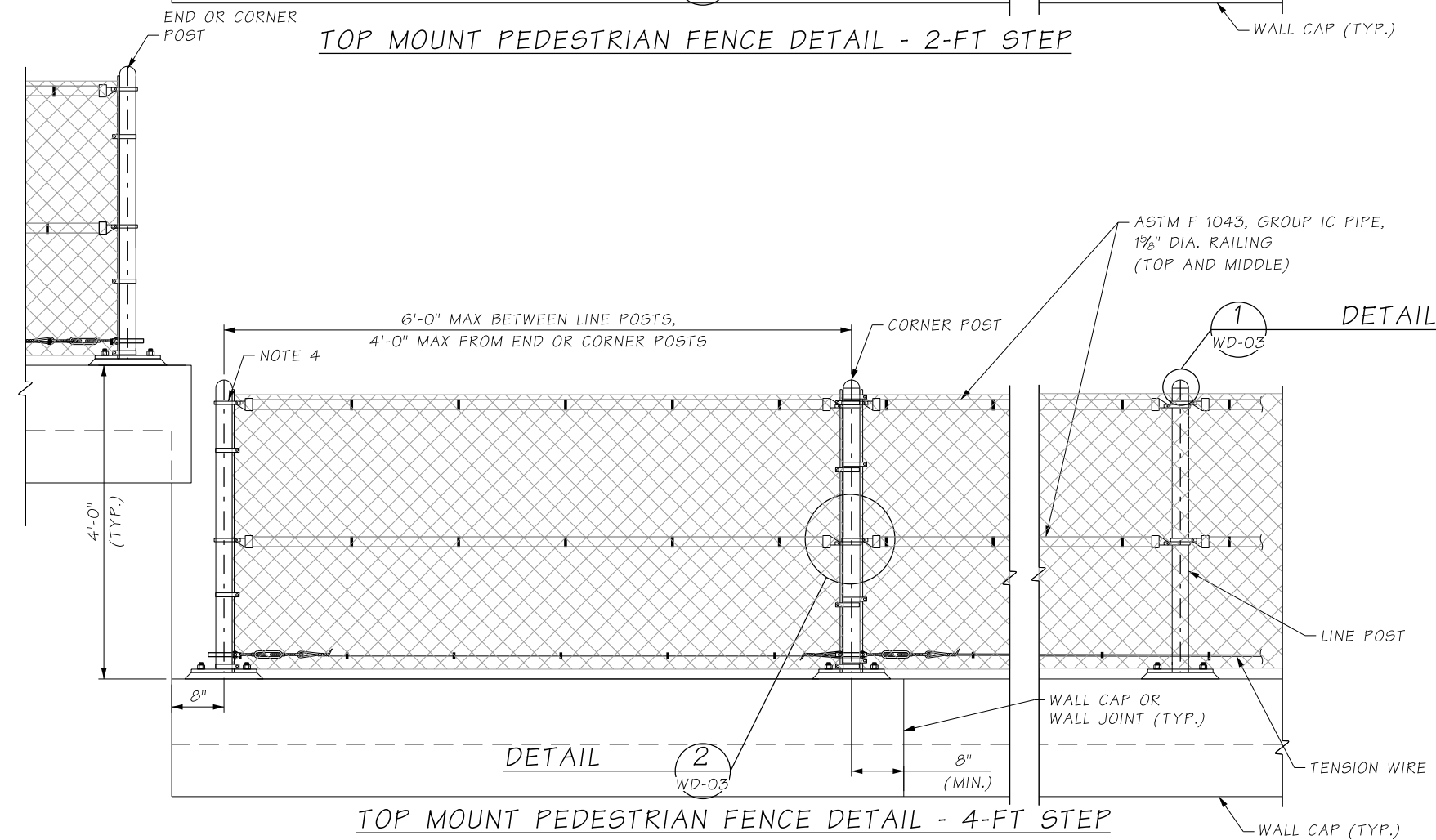
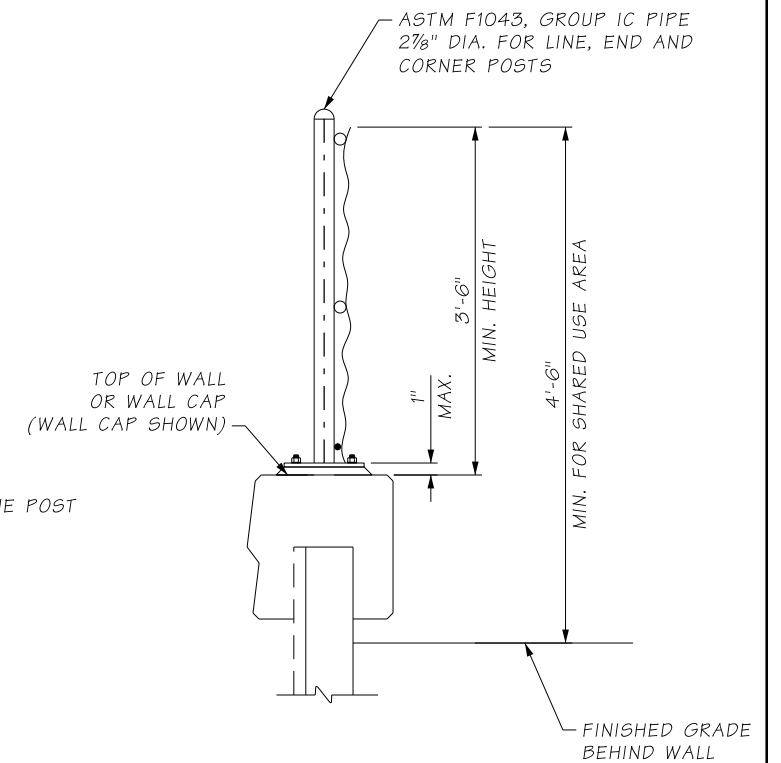
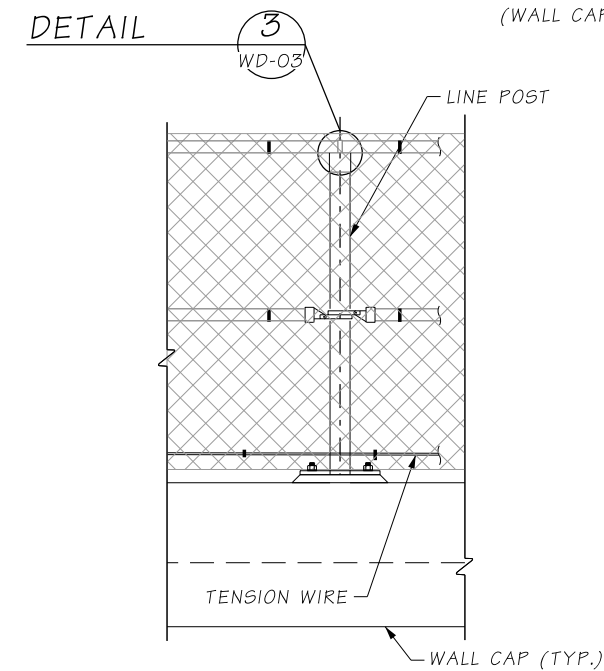
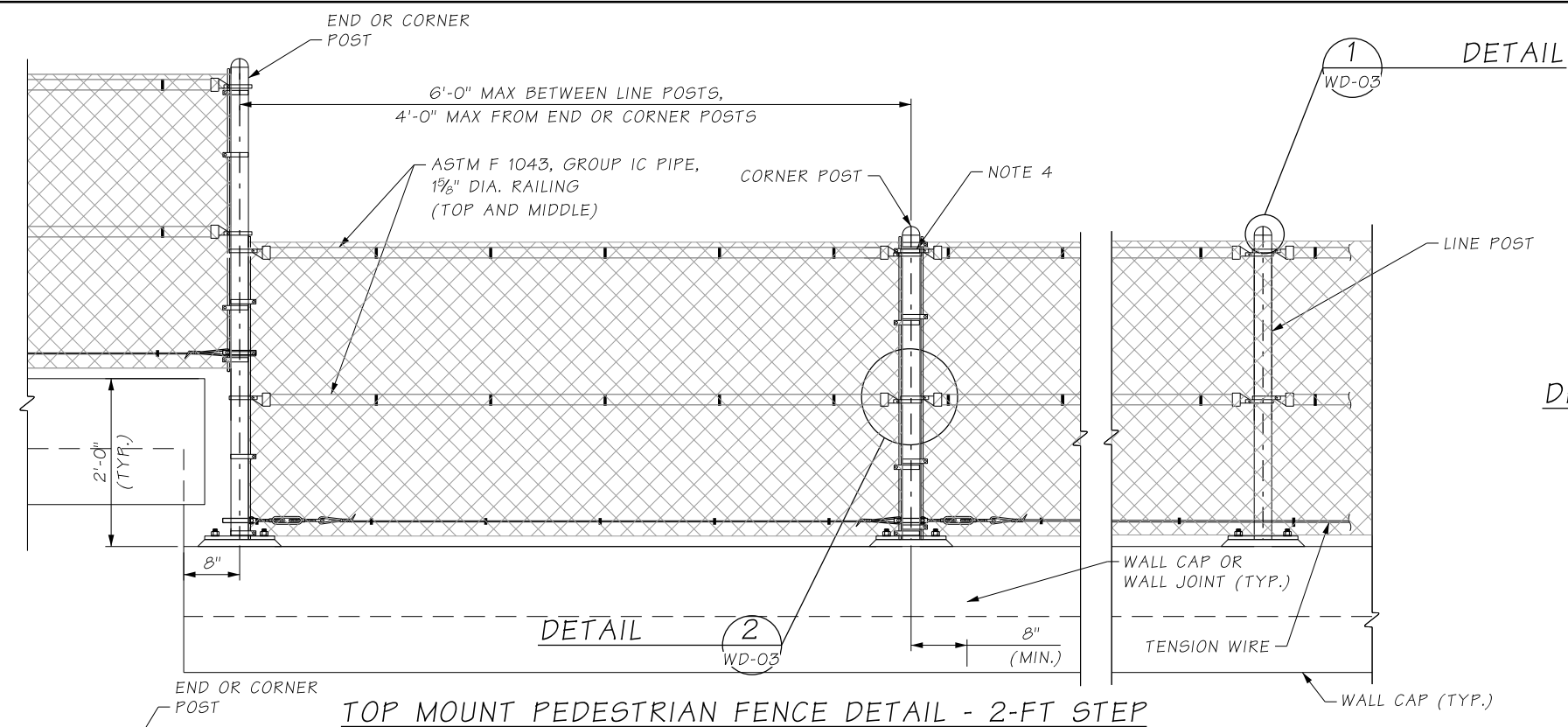
## EXPRESS TOLL LANES

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## INDEX OF SHEETS - VOL 8

PLAN REF NO.

**IN08-2**



- NOTES:

1. CHAIN LINK FABRIC SHALL BE 11 GAUGE, BLACK VINYL COATED, MAX OPENING = 2 INCHES. ALL POSTS, RAILS AND OTHER HARDWARE SHALL BE POWDER COATED BLACK.
2. UNLESS OTHERWISE NOTED, GENERAL CONNECTION HARDWARE FOR CHAIN LINK FENCE SHALL CONFORM TO WSDOT STANDARD PLAN L-20.10-03, TYPE 4.
3. POSTS SHALL BE SPACED AT NO MORE THAN 6' ON CENTER BETWEEN LINE POSTS AND 4' MAX FROM END OR CORNER POSTS.
4. STEEL BRACE BAND CONNECTIONS ARE SHOWN. ALTERNATE CONNECTIONS DESIGNED TO RESIST THE REQUIRED LOADS MAY BE SUBMITTED FOR REVIEW DURING CONSTRUCTION. SEE SHEET WD-03.
5. SEE SHEET WD-03 FOR VERTICAL POST BASE CONNECTION DETAILS.
6. SEE GSP 8-12 CHAIN LINK FENCE AND WIRE FENCE FOR ADDITIONAL FENCE REQUIREMENTS.

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD				REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
Designed By:	M. FRAKER					10	WASH.			
Checked By:	M. GARVER									
Detailed By:	R. ABANO						JOB NUMBER XL5467			
Current Revision By:										
Date:	12/1/2021					CONTRACT NO. C9242				
Time:	3:00:08 PM	DESCRIPTION			DATE	NO				



**FINAL DESIGN**  
**NOT FOR CONSTRUCTION**



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Department of Transportation**

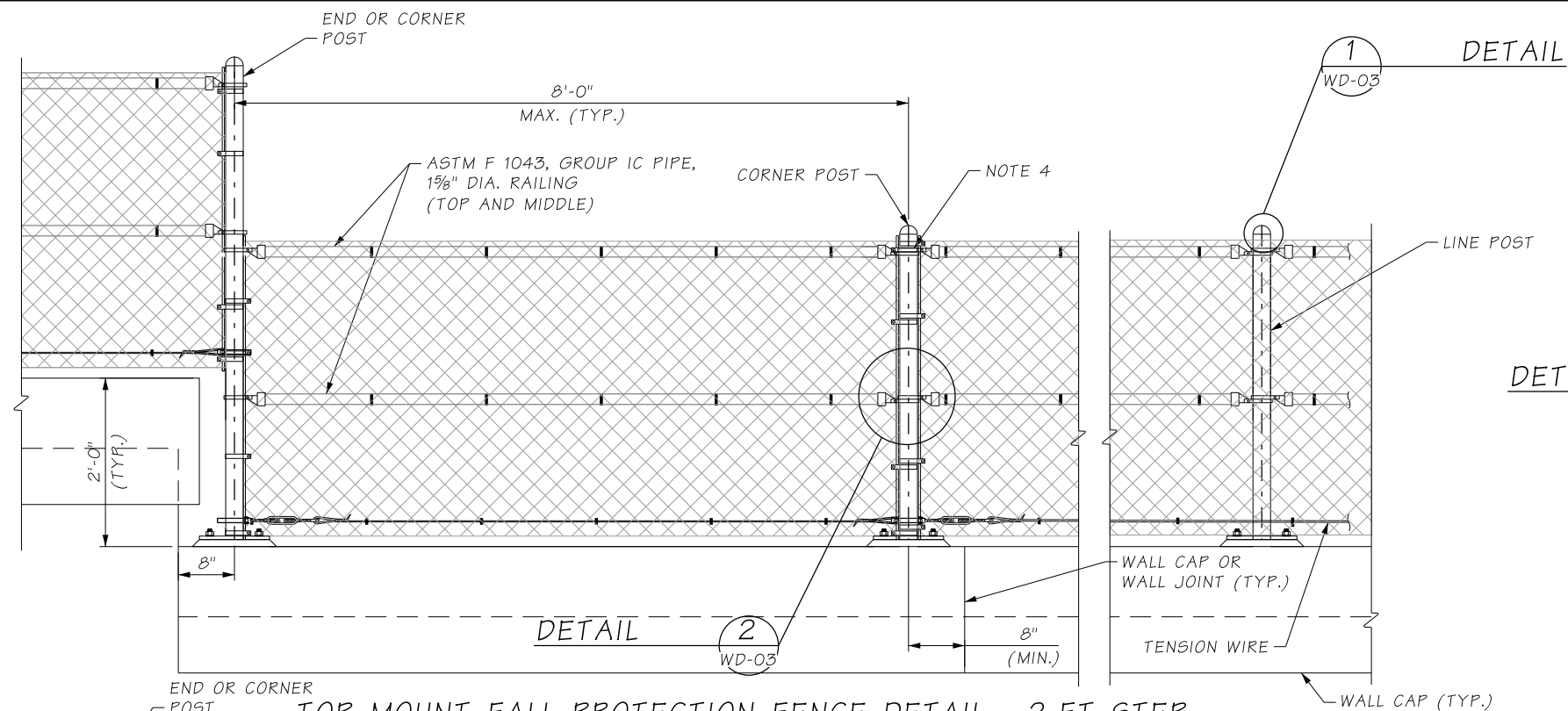
FLATIRON LANE 

**wood.**

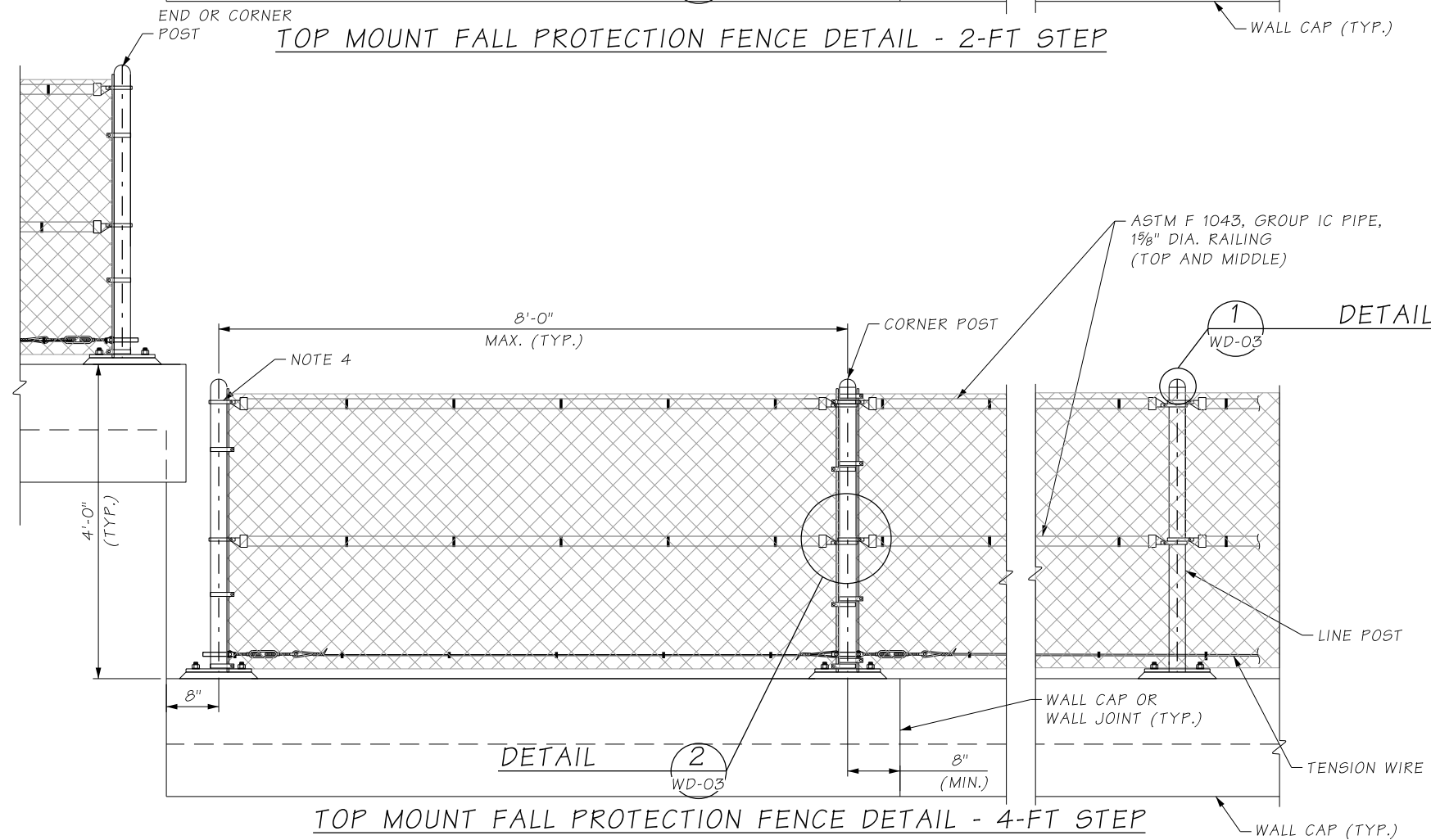
**I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT**

RETAINING WALL TYPICAL DETAILS  
PEDESTRIAN FENCE DETAILS

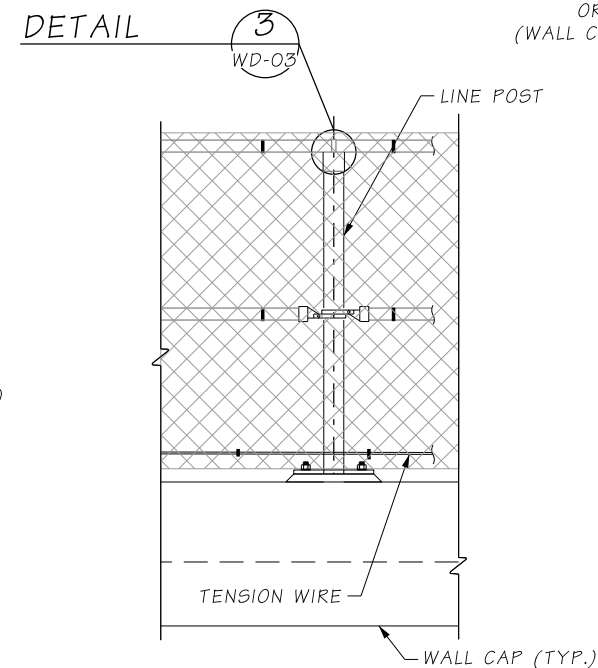
AN REF. NO.  
WD-01  
SHEET  
OF  
SHEETS



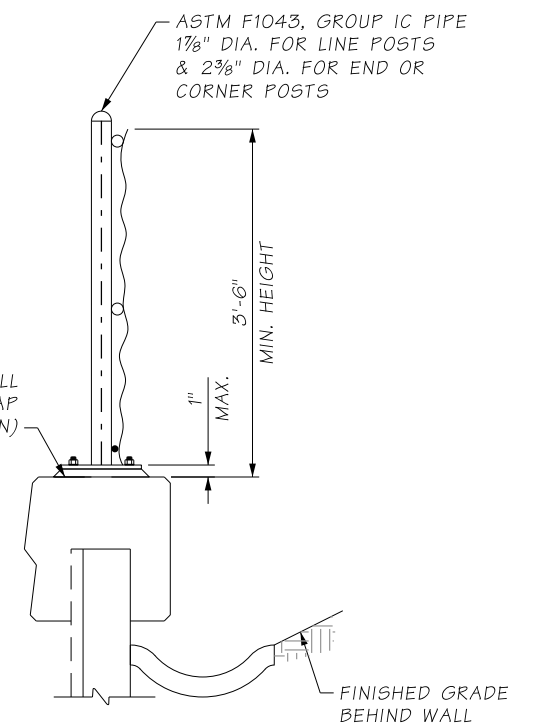
TOP MOUNT FALL PROTECTION FENCE DETAIL - 2-FT STEP



TOP MOUNT FALL PROTECTION FENCE DETAIL - 4-FT STEP



OPTIONAL LINE POST WITH CONTINUOUS TOP RAIL



TYP SECTION

## NOTES:

- CHAIN LINK FABRIC SHALL BE 11 GAUGE, BLACK VINYL COATED, MAX OPENING = 2 INCHES. ALL POSTS, RAILS AND OTHER HARDWARE SHALL BE POWDER COATED BLACK.
- UNLESS OTHERWISE NOTED, GENERAL CONNECTION HARDWARE FOR CHAIN LINK FENCE SHALL CONFORM TO WSDOT STANDARD PLAN L-20.10-03, TYPE 4.
- POSTS SHALL BE SPACED AT NO MORE THAN 8 FEET ON CENTERS.
- STEEL BRACE BAND CONNECTIONS ARE SHOWN. ALTERNATE CONNECTIONS DESIGNED TO RESIST THE REQUIRED LOADS MAY BE SUBMITTED FOR REVIEW DURING CONSTRUCTION. SEE SHEET WD-03.
- SEE SHEET WD-03 FOR VERTICAL POST BASE CONNECTION DETAILS.
- SEE GSP 8-12 CHAIN LINK FENCE AND WIRE FENCE FOR ADDITIONAL FENCE REQUIREMENTS.
- FOR ALTERNATE FALL PROTECTION CABLE FENCE DETAILS, SEE SHEET WD-08.

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD	REGION NO.	STATE	FED. AID, PROJ. NO.	SHEET NO.	TOTAL SHEETS
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Checked By:	M. GARVER			JOB NUMBER			
Detailed By:	R. ABANO			XL5467			
Current Revision By:				CONTRACT NO.			
Date:	12/1/2021			C9242			
Time:	2:59:25 PM	DESCRIPTION	DATE	NO			



DATE

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Department of Transportation

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wood.

I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECTRETAINING WALL TYPICAL DETAILS  
FALL PROTECTION FENCE DETAILS

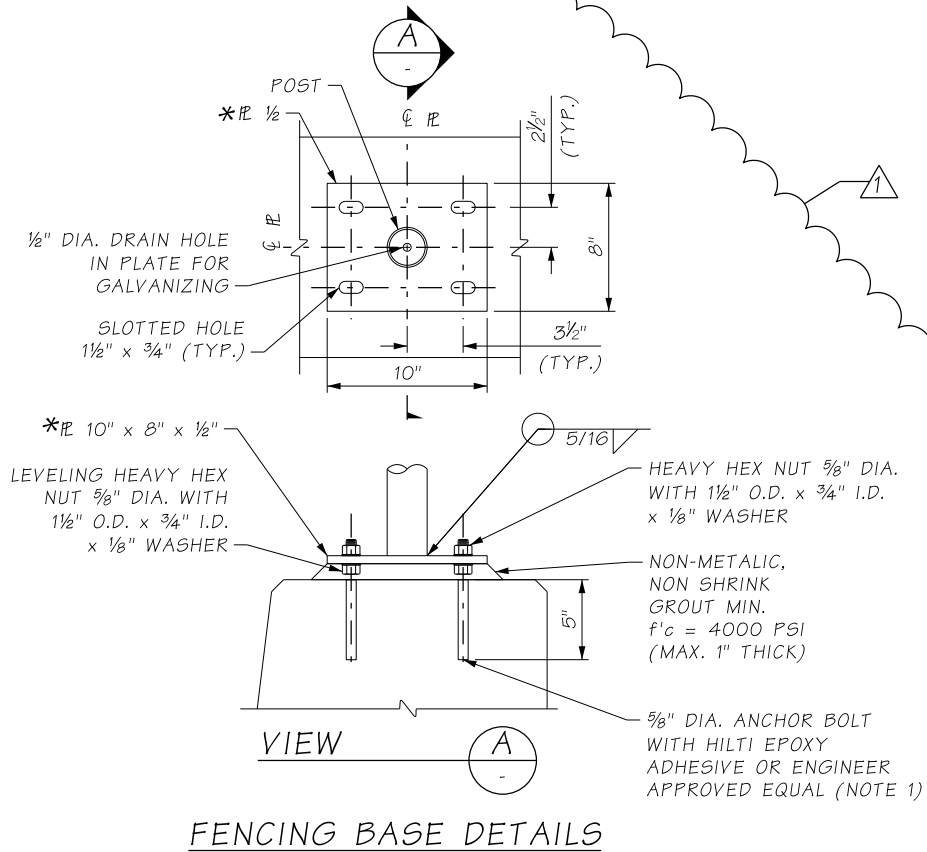
PLAN REF. NO.

WD-02

SHEET

OF

SHEETS



DRILL & TAP FOR 1/4" SETSCREW (CAP ONLY)  
STEEL CAP  
POST

DETAIL 1

1 5/8" DIA. PIPE (TYP.)  
STEEL LOOP CAP  
POST

DETAIL 3

1 5/8" DIA. PIPE (TYP.)  
POST  
STEEL BRACE BANDS  
BOLT (TYP.)  
STEEL RAIL ENDS (TYP.)

DETAIL 2

POST (TYP.)  
1/4"  
STEEL STRAP BRACE BAND  
HOLE AS REQUIRED FOR BOLT

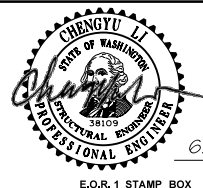
BRACE BAND

NOTES:

- PER STANDARD SPECIFICATIONS SECTION 9-06.5(4), ANCHOR BOLTS SHALL MEET CRITERIA OF ASTM F1554. ANCHOR GRADE 55 OR 105 SHALL BE USED WITH HILTI HIT HY 200 EPOXY, AND GRADE 36, 55 OR 105 SHALL BE USED FOR HILTI HIT RE 500 EPOXY. NUTS SHALL MEET ASTM A563, GRADE D OR DH. STEEL PLATE SHALL MEET REQUIREMENTS OF ASTM A36 AND SHALL BE GALVANIZED. CORING FOR ANCHOR BOLT SHALL BE MADE BY HAMMER DRILL WITH CARBIDE BIT OR DIAMOND BIT AND ROUGHENED.
- STEEL BRACE BAND CONNECTIONS OF TOP AND MID RAILING SHALL BE MIN. 12 GAGE x 3/4" PER ASTM F626. MIN. STEEL GRADE FOR BRACE BAND SHALL BE AASHTO M270, GRADE 36 OR ASTM A36. BOLTS SHALL BE MIN. ASTM A307 GRADE A PER STANDARD SPECIFICATIONS SECTION 9-06.22. ALTERNATE CONNECTIONS TO WHAT IS SHOWN IN THESE DRAWINGS DESIGNED TO RESIST THE REQUIRED LOADS MAY BE SUBMITTED FOR REVIEW DURING CONSTRUCTION. IF SO, TYPE 3E WORKING DRAWINGS SHALL BE SUBMITTED PER CONFORMED RFP, I-405, RENTON TO BELLEVUE WIDENING AND ETL PROJECT, SECTION 2.13.7.2.
- FILLET WELD BETWEEN POST AND BASE PLATE SHALL BE MADE WITH WELD FILLER METAL WITH MINIMUM TENSILE STRENGTH OF 70 KSI.

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD				REGION NO.	STATE	FED. AID, PROJ. NO.	SHEET NO.	TOTAL SHEETS
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Checked By:	G. BAJORIA	REVISION	12/22/21	1						
Detailed By:	J. FORBES					JOB NUMBER				
Current Revision By:	M. FRAKER					XL5467				
Date:	12/22/2021					CONTRACT NO.				
Time:	10:55:10 PM	DESCRIPTION	DATE	NO		C9242				



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I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT

RETAINING WALL TYPICAL DETAILS  
FENCE BASE AND CONNECTIONS

PLAN REF. NO.

WD-03

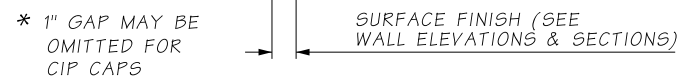
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- RECO WALL CAP TYPICAL DETAIL



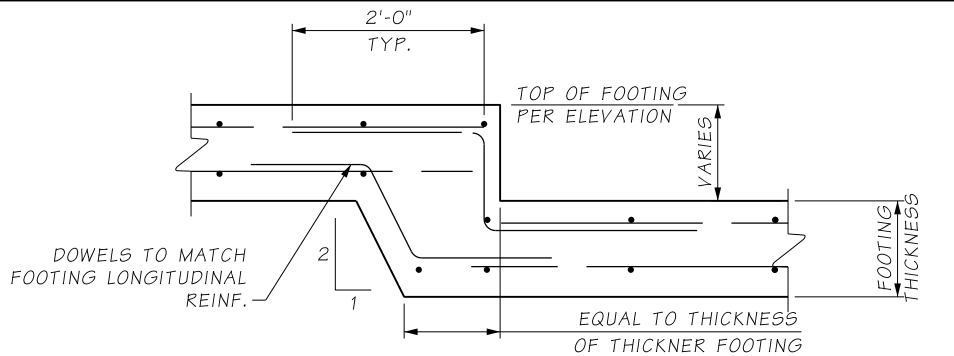
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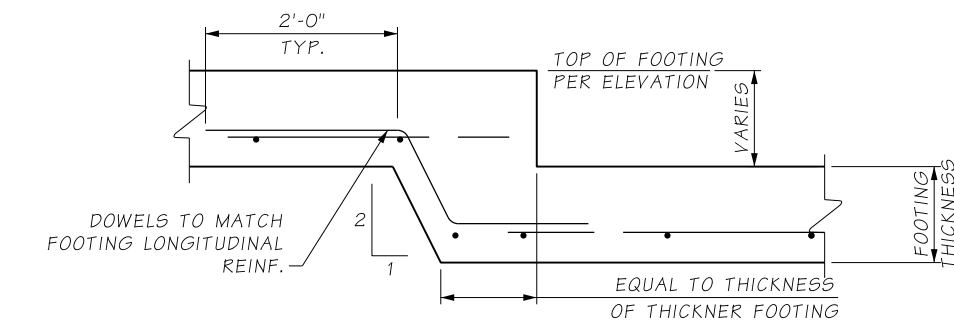
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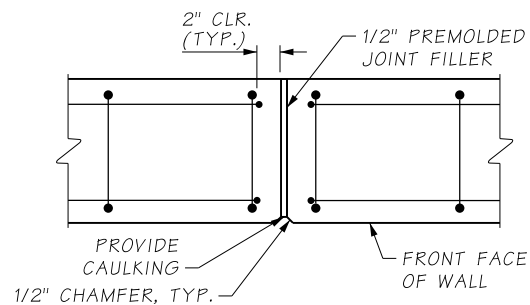
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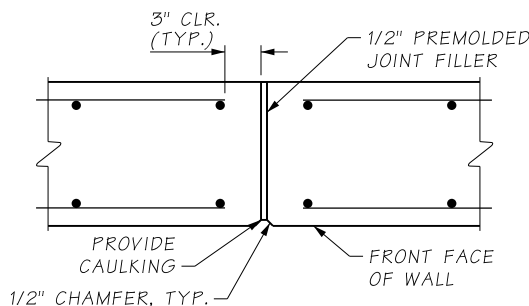
CIP FOOTING STEP TYPICAL DETAIL



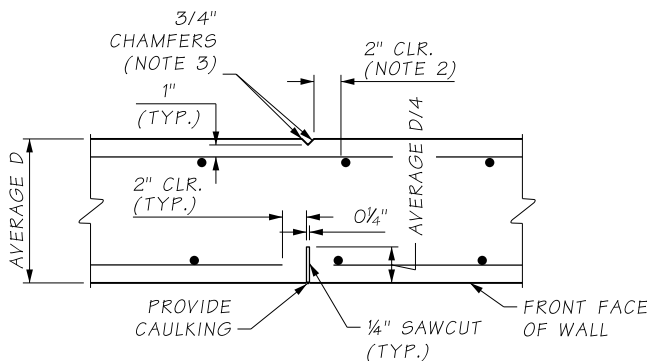
FASCIA FOOTING STEP TYPICAL DETAIL



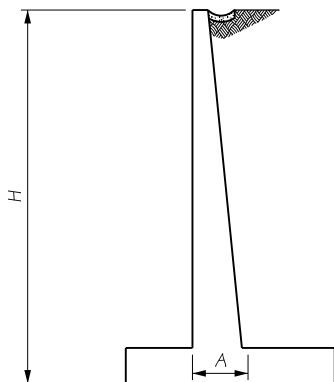
WALL CAP EXPANSION JOINT TYPICAL DETAIL



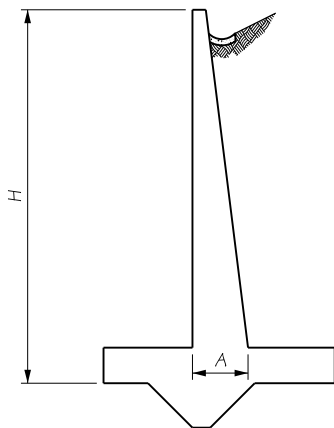
WALL EXPANSION JOINT TYPICAL DETAIL



CONTRACTION JOINT TYPICAL DETAIL  
(NOTE 1)



WSDOT TYPE 1 RETAINING WALL



WSDOT TYPE 3 RETAINING WALL

NOTES:

1. THE MINIMUM DEPTH OF CONTRACTION JOINTS SHALL BE BASED ON THE AVERAGE THICKNESS (D) OF THE WALL STEM DIVIDED BY 4. SEE TABLES BELOW FOR WSDOT TYPE 1 AND TYPE 3 REINFORCED CONCRETE WALL INFORMATION AND CONTRACTION JOINT DEPTHS.

WSDOT TYPE 1 REINFORCED CONCRETE RETAINING WALL

(SEE STANDARD PLAN D-10.10-01 FOR WALL HEIGHT > 20 FT)

WALL HEIGHT (H) (FT)	STEM BASE WIDTH (A) (FT)	CONTRACTION JOINT DEPTH (IN)
5	1.33	3.3
6	1.46	3.5
7	1.54	3.6
8	1.63	3.8
9	1.75	3.9
10	1.83	4.1
11	1.96	4.3
12	2.04	4.4
13	2.13	4.5
14	2.25	4.7
15	2.33	4.8
16	2.42	4.9
17	2.50	5.1
18	2.58	5.2
19	2.66	5.3
20	2.79	5.5

WSDOT TYPE 3 REINFORCED CONCRETE RETAINING WALL

(SEE STANDARD PLAN D-10.20-01 FOR WALL HEIGHT > 20 FT)

WALL HEIGHT (H) (FT)	STEM BASE WIDTH (A) (FT)	CONTRACTION JOINT DEPTH (IN)
5	1.25	3.0
6	1.38	3.2
7	1.50	3.4
8	1.63	3.6
9	1.75	3.8
10	1.88	3.9
11	2.00	4.1
12	2.13	4.3
13	2.25	4.5
14	2.33	4.6
15	2.46	4.8
16	2.54	4.9
17	2.63	5.1
18	2.75	5.3
19	2.88	5.4
20	2.96	5.6

2. VERTICAL REINFORCEMENT SHALL BE PLACED A MIN. 2 INCHES FROM WALL BACKFILL SIDE CHAMFERS.
3. PROVIDE VERTICAL CHAMFER FROM TOP OF WALL TO A MIN. 1'-0" BELOW FINISHED GRADE BEHIND THE WALL.

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD	REGION NO.	STATE	FED. AID, PROJ. NO.	SHEET NO.	TOTAL SHEETS
Designed By:	M. FRAKER		10	WASH.			
Checked By:	M. GARVER			JOB NUMBER			
Detailed By:	R. ABANO			XL5467			
Current Revision By:				CONTRACT NO.			
Date:	12/1/2021			C9242			
Time:	2:59:28 PM	DESCRIPTION	DATE	NO			



DATE

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DATE

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I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT

RETAINING WALL TYPICAL DETAILS  
WALL FOOTING AND JOINT DETAILS

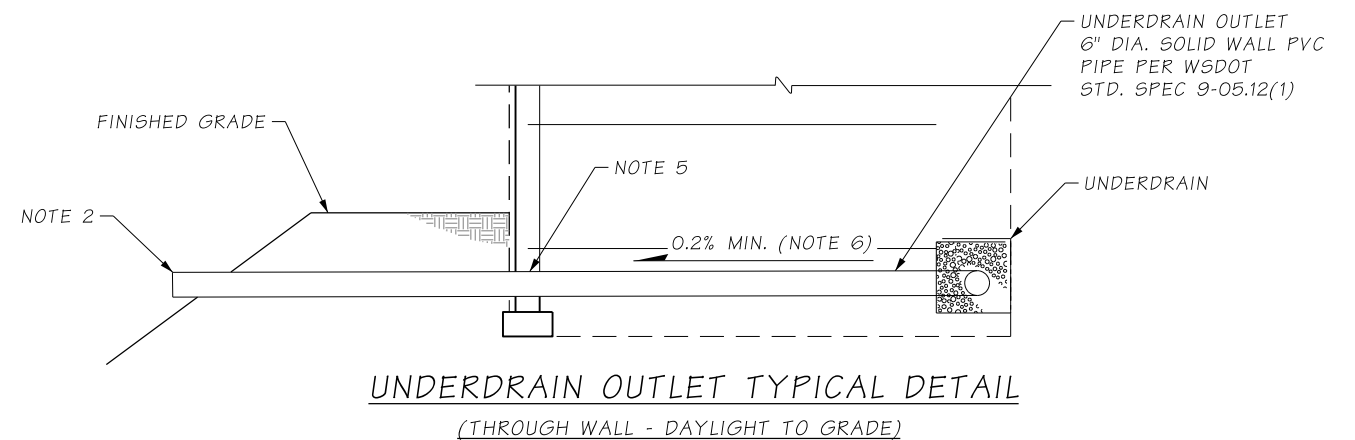
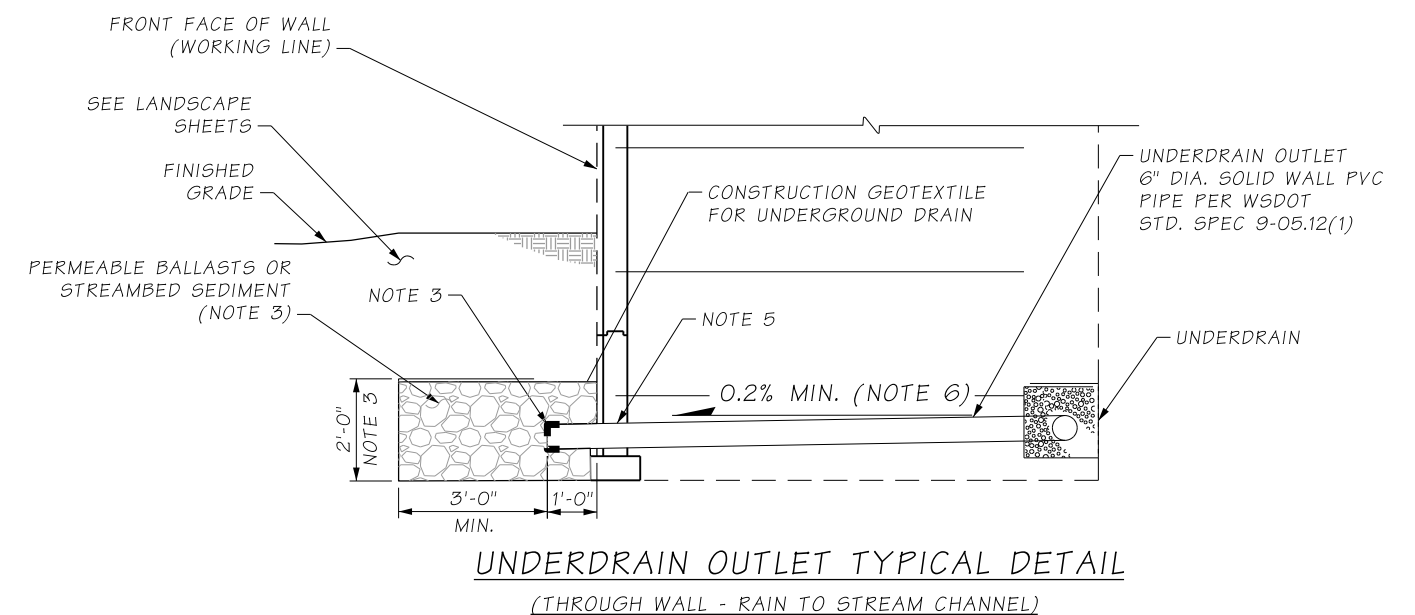
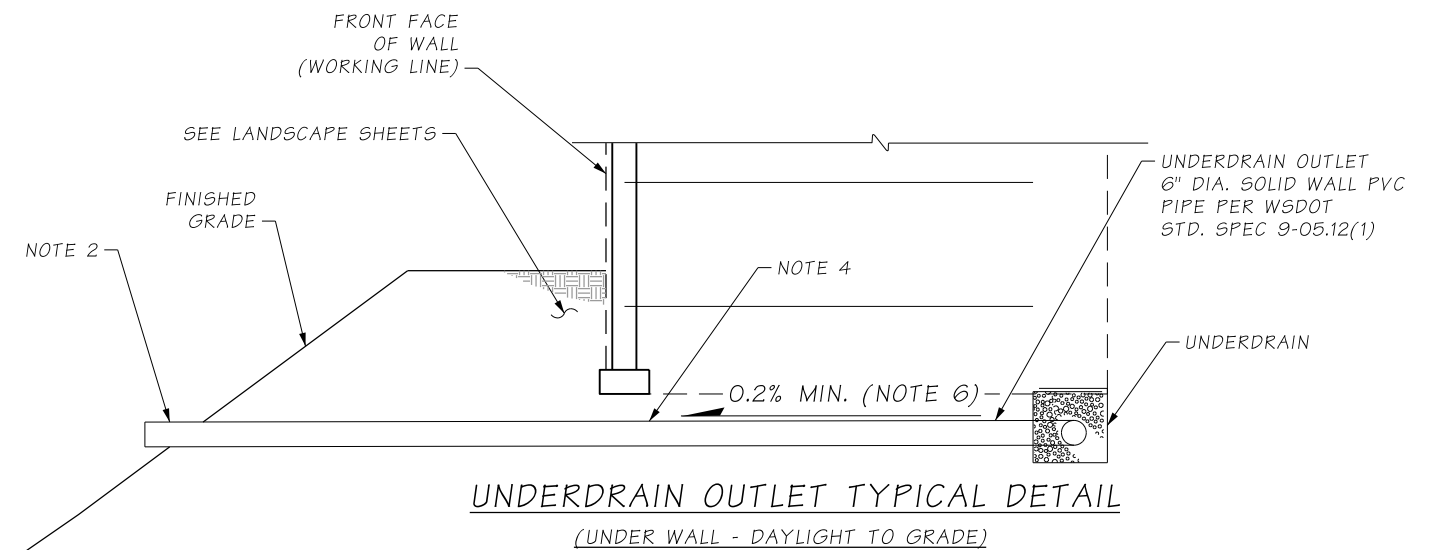
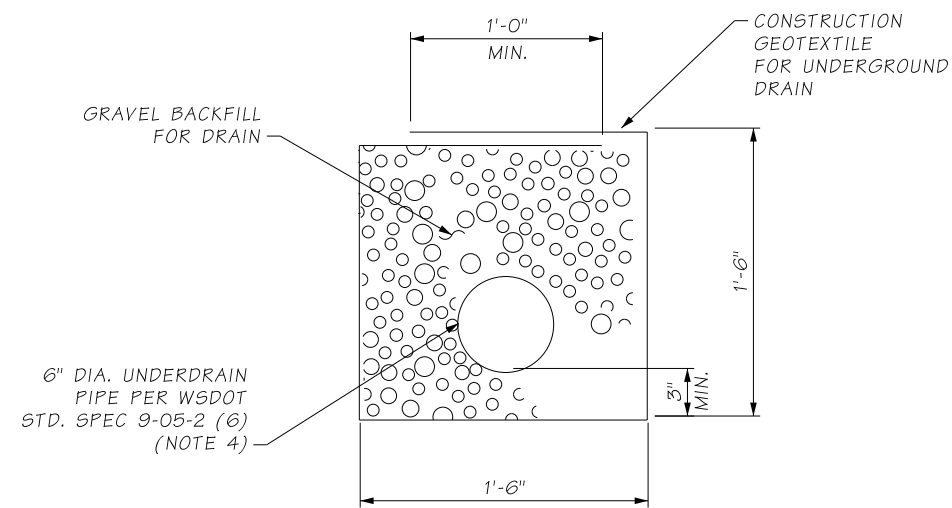
PLAN REF. NO.

WD-05

SHEET

OF

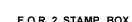
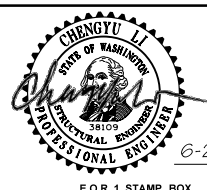
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## UNDERDRAIN NOTES:

1. UNDERDRAIN OUTLET TYPICAL DETAILS ARE SHOWN WITH SEW WALL AND APPLY TO ALL WALL TYPES.
2. ALL UNDERDRAIN OUTLETS THAT DAYLIGHT TO SURFACE SHALL BE FITTED WITH A FLAP TYPE ANTI-RODENT ENTRY FITTING. EXTEND PIPE BEYOND FACE OF WALL A MIN. OF 1'-0" AT OUTLET, OR AS REQUIRED TO ATTACH FITTING.
3. UNDERDRAINS THAT OUTLET TO STREAM CHANNELS SHALL BE FITTED WITH STAINLESS STEEL MESH ANTI-RODENT ENTRY FITTING. THE PIPE OUTLET SHALL BE BACKFILLED WITH FREE DRAINING PERMEABLE BALLAST OR STREAMBED SEDIMENT MATERIAL. VERTICAL DIMENSION OF DRAIN SHOWN IS THE MIN. AND MAY EXTEND TO A MIN. 12" BELOW FINISHED GRADE. EXTEND FREE DRAINING MATERIAL HORIZONTALLY ALONG THE UNDERDRAIN A DISTANCE OF 3'-0" FROM UNDERDRAIN OUTLET, OR UNTIL CONNECTION WITH CHANNEL STREAMBED MATERIAL, WHICHEVER IS GREATER. EXTEND FREE DRAINING MATERIAL HORIZONTALLY AND PERPENDICULAR TO THE UNDERDRAIN A MINIMUM DISTANCE OF 9" ON EITHER SIDE OF THE UNDERDRAIN.
4. PROVIDE MIN. 6" COVER OVER UNDERDRAIN OUTLET UNDER WALL.
5. UNDERDRAIN ALIGNMENTS AND ELEVATIONS PROVIDED MAY BE ADJUSTED IF REQUIRED WITH WALL DESIGN IN THE FIELD. UNDERDRAIN OUTLETS SHALL BE PLACED ON MIN. SLOPE OF 0.2% AND MAX. SLOPE OF 2.0%.
6. SEE DRAINAGE SHEETS FOR UNDERDRAIN CLEANOUT REQUIREMENTS AND SEE SHEET WD-07 FOR WEEP HOLE DETAILS.

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD			REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
Designed By:	J. FORBES	RELEASED FOR CONSTRUCTION	6/24/21	0	10	WASH.			
Checked By:	G. BAJORIA	REVISION	12/22/21	1					
Detailed By:	J. FORBES				JOB NUMBER XL5467				
Current Revision By:	M. FRAKER								
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FLATIRON LANE 

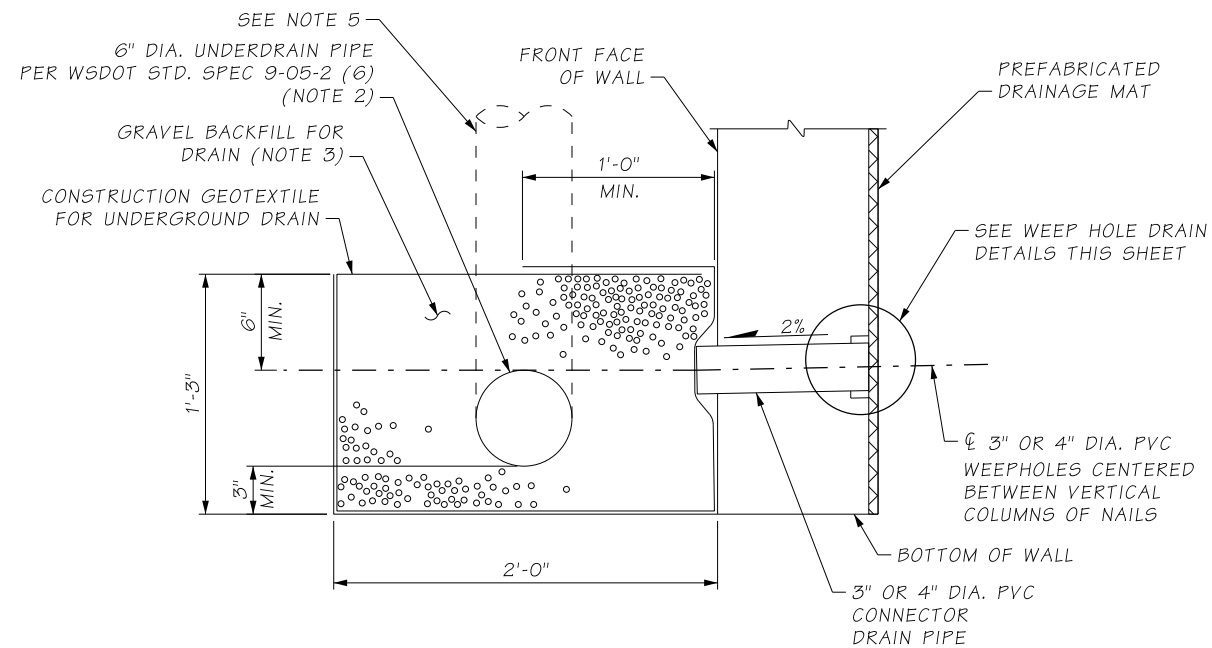
**wood.**

**I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT**

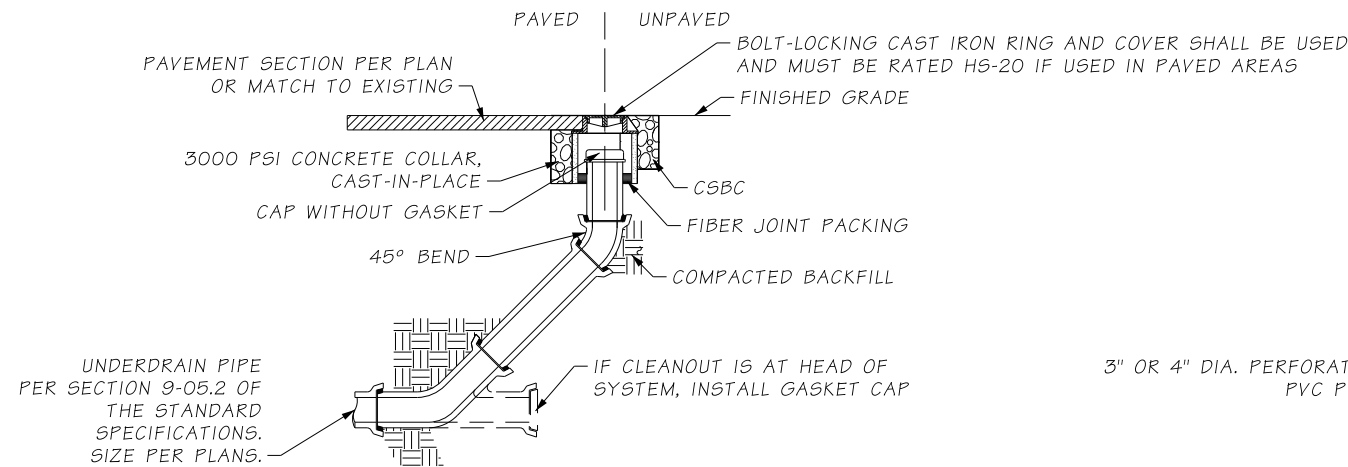
### RETAINING WALL TYPICAL DETAILS

PLAN REF. NO.  
**WD-06**  
SHEET  
OF  
SHEETS





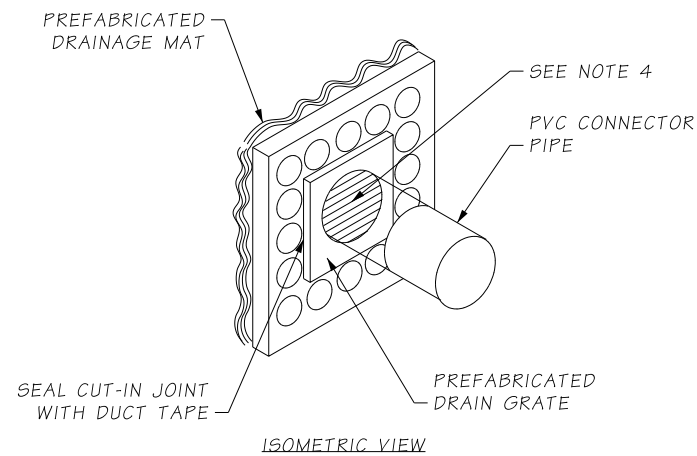
WALL TYPICAL UNDERDRAIN



CLEANOUT TO GRADE DETAIL

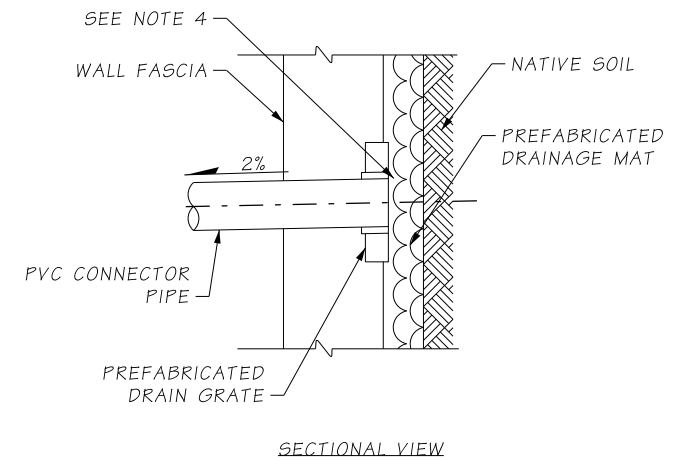
### UNDERDRAIN NOTES:

1. UNDERDRAIN ALIGNMENTS AND ELEVATIONS PROVIDED MAY BE ADJUSTED FOR CONFLICTS WITH WALL CONSTRUCTION IN THE FIELD. SEE WALL ELEVATIONS FOR INVERTS. MIN. SLOPE OF UNDERDRAIN SHALL BE 0.2%.
2. SEE DRAINAGE SHEETS FOR UNDERDRAIN CLEANOUT REQUIREMENTS AND DETAILS.
3. HEIGHT OF GRAVEL BACKFILL FOR DRAIN SHOWN IS MIN. REQUIRED. ADJUST HEIGHT OF GRAVEL AND LOCATION OF DRAIN FROM THE BASE OF WALL WITH INFORMATION PROVIDED ON THE WALL ELEVATIONS.
4. DRILL 1/4" HOLES INTO THE FLAT PLASTIC AREAS BETWEEN DIMPLES OF THE HARD PLASTIC CORE ON THE BACK (WALL) SIDE OF THE SHEET DRAIN AT THE WEEP HOLE LOCATION. DO NOT DRILL THROUGH DIMPLES OR FABRIC. HOLES SHOULD EXTEND IN ALL DIRECTION TO MATCH THE DIMENSIONS OF THE WEEP HOLE.
5. INSTALL CLEANOUTS AT 200' MAX SPACING.

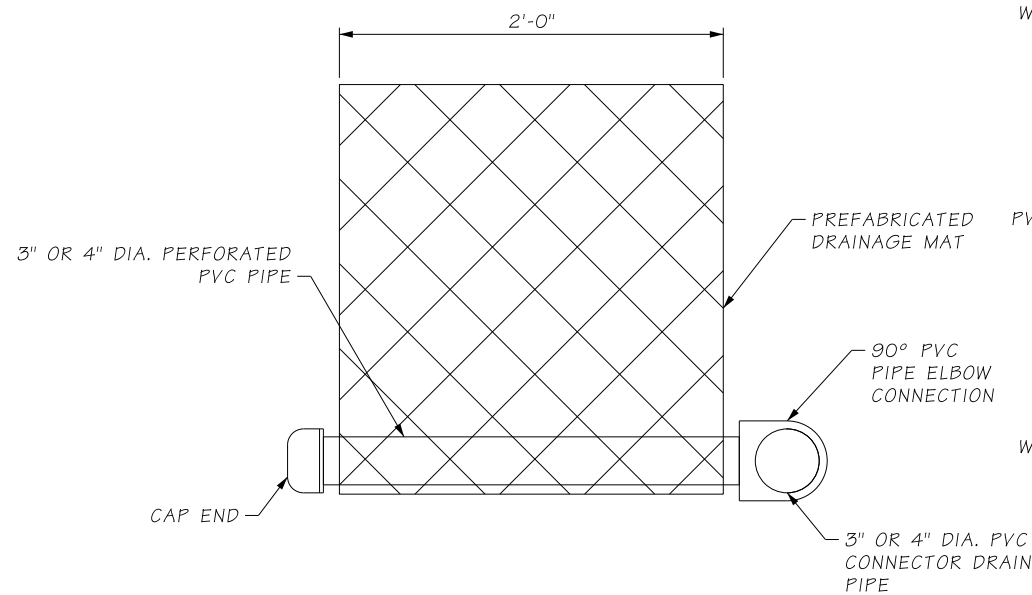


### OPTION 1- WEEP HOLE DRAIN DETAILS

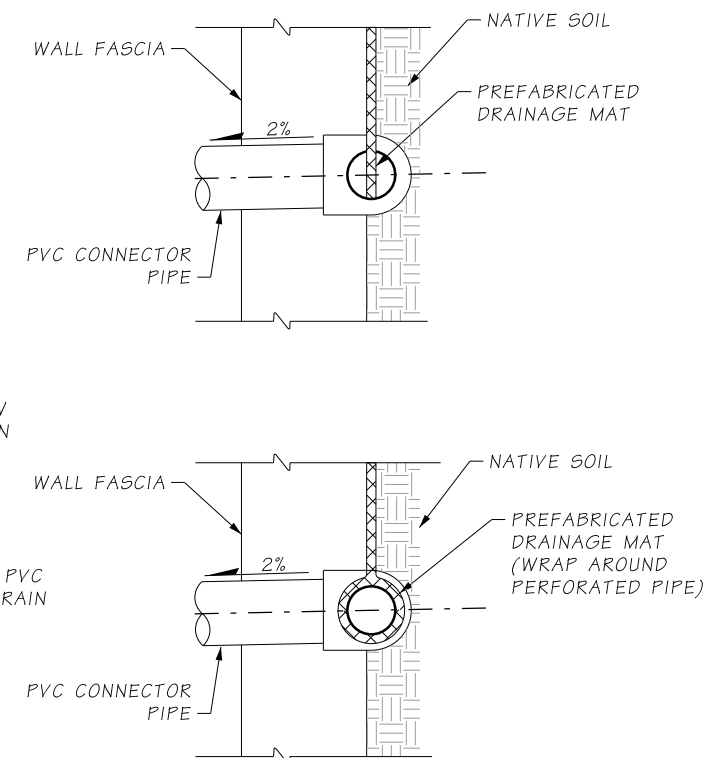
DRAIN GRATE INSTALLATION SHALL NOT DISRUPT PREFABRICATED DRAINAGE MAT



SECTIONAL VIEW



ELEVATION VIEW



SECTIONAL VIEW

### OPTION 2 - WEEP HOLE DRAIN DETAILS

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD			REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
Designed By:	M. FRAKER				10	WASH.			
Checked By:	M. GARVER				JOB NUMBER				
Detailed By:	R. ABANO				XL5467				
Current Revision By:					CONTRACT NO.				
Date:	12/1/2021				C9242				
Time:	2:59:24 PM	DESCRIPTION	DATE	NO					



DATE

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Department of Transportation

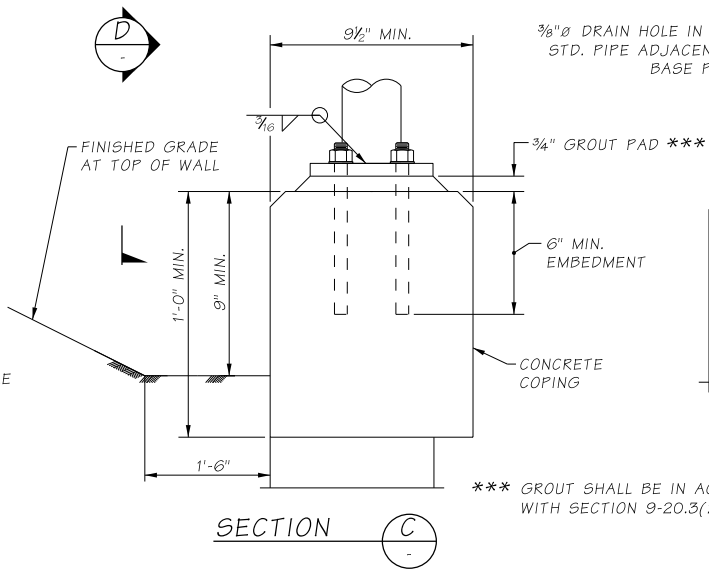
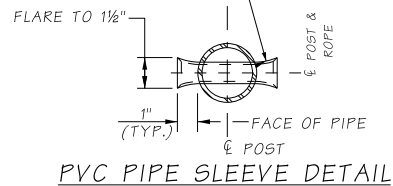
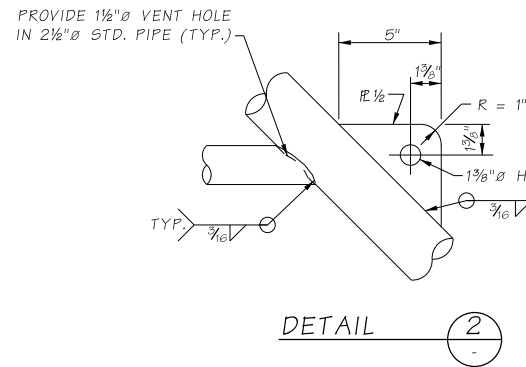
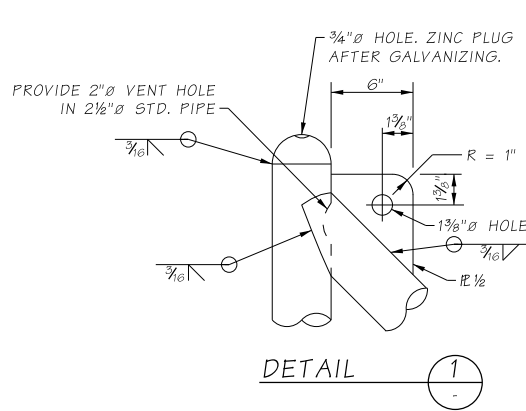
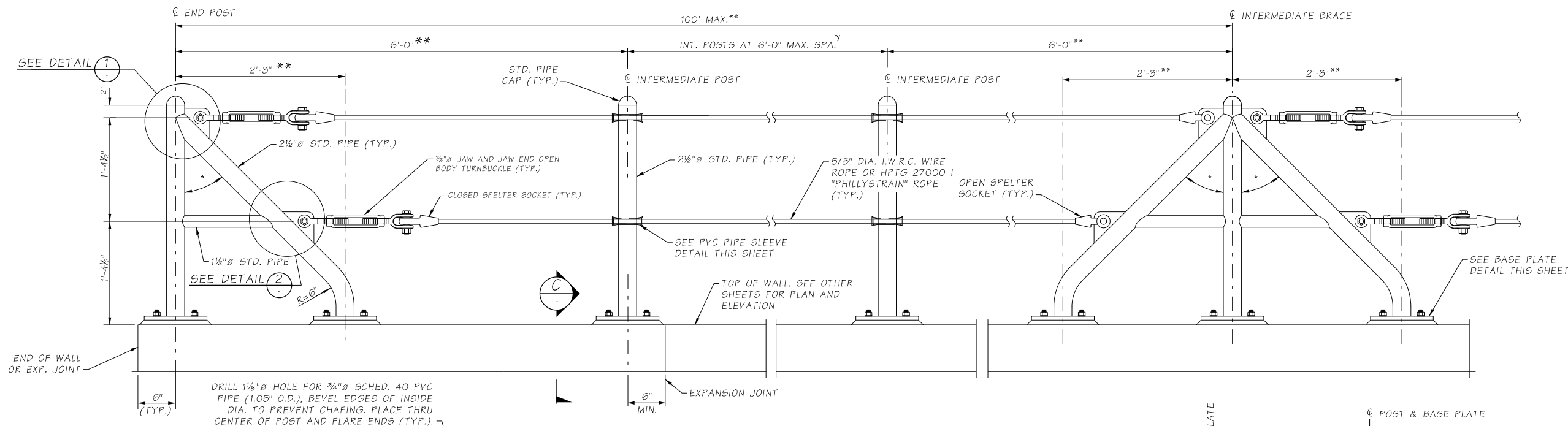
FLATIRON LANE

wood.

I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT

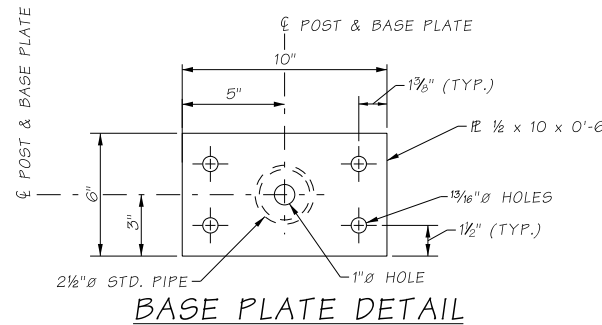
RETAINING WALL TYPICAL DETAILS  
WALL DRAIN AND WEEP HOLE DETAILS

PLAN REF. NO.  
WD-07  
SHEET  
OF  
SHEETS



### ELEVATION CABLE FENCE

- \* ANGLES VARY WITH THE SLOPE OF THE TOP OF WALL. APPROX. 45° WHEN INSTALLED ON A LEVEL SURFACE.
- \*\* MEASURED PERPENDICULAR TO THE POSTS.
- γ OMIT INTERMEDIATE POST WHEN SPACING BETWEEN END POST AND INTERMEDIATE BRACE IS LESS THAN 8'-6".



### NOTES:

- ALL STEEL PIPE SHALL BE ASTM A53 GRADE B, TYPE E OR S, OR EQUIVALENT HSS ROUND TUBE ASTM A 500 GRADE B
- ALL STEEL PLATE SHALL BE ASTM A 36 OR ASTM A 572
- ROPE SHALL CONSIST OF ZINC-COATED WIRES CONFORMING TO ASTM A 603, OR ASTM A 1023 WITH A PRESTRETCHED MODULUS OF ELASTICITY OF 15,000 KSI, OR "PHILLYSTRAN" ROPE.
- ALL PARTS EXCEPT ROPE SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111, M232, OR ASTM F2329 AFTER FABRICATION, UNLESS NOTED OTHERWISE.
- THE SPELTER SOCKETS AND SOCKETING PROCEDURE SHALL BE IN ACCORDANCE WITH THE SPELTER SOCKET AND ROPE MANUFACTURERS RECOMMENDATIONS.
- ALL POSTS TO BE INSTALLED VERTICAL AND ROPE TO BE INSTALLED PARALLEL TO TOP OF WALL.
- ROPE SHALL BE INSTALLED TO 400 LBS TENSION LEAVING A TAKE UP OF 6" STILL AVAILABLE IN THE TURNBUCKLE. THE CONTRACTOR SHALL SUBMIT CABLE TENSIONING DETAILS TO THE ENGINEER FOR ACCEPTANCE.
- EACH CONTINUOUS LENGTH OF CABLE SHALL HAVE A TURNBUCKLE AT ONE END ONLY AND BE ANCHORED TO END POST WITH BRACE AT BOTH ENDS.
- INTERMEDIATE POSTS AND BRACES SHALL NOT TO BE INSTALLED ACROSS EXPANSION JOINT.
- CABLE FENCE WAS DESIGNED FOR A 200 LB. LOAD ON THE TOP RAIL APPLIED IN ANY DIRECTION, AS REQUIRED BY WASHINGTON ADMINISTRATIVE CODE 296-155-24615.
- ROPE, SPELTER SOCKETS, TURNBUCKLES AND THEIR CONNECTIONS SHALL HAVE A MINIMUM BREAKING STRENGTH OF 26 KIPS.

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Detailed By:	T. ANTONACCI			XL5467			
Current Revision By:				CONTRACT NO.			
Date:	12/1/2021			C9242			
Time:	3:00:28 PM	DESCRIPTION	DATE	NO			



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Washington State  
Department of Transportation

FLATIRON LANE

wood.

I-405; RENTON TO BELLEVUE WIDENING  
AND EXPRESS TOLL LANES PROJECT

RETAINING WALL TYPICAL DETAILS  
FALL PROTECTION CABLE FENCE ALT.

PLAN REF. NO.

WD-08

SHEET

OF

SHEETS



1. ALL ANCHOR PLATES SHALL BE GALVANIZED.
2. THE TOP OF WALLS SHALL BE LEVEL. WALL CAP STEPS SHALL BE SPACED AT 24'-0" MIN, UNLESS OTHERWISE SHOWN.
3. THE TYPICAL WALL CAP STEP SHALL BE 2'-0".
4. PRECAST CAP SHOWN. CIP SIMILAR.
5. \* BLOCKOUTS FOR PRECAST WALL CAPS ONLY
6. COPING JOINTS SHALL ALIGN WITH WALL JOINTS. COORDINATE WITH WALL JOINT LAYOUT.

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RETAINING WALL DETAILS  
WALL CAP CONNECTION DETAILS

SHEET  
OF  
SHEETS